PETRZHAK, K.A.; TOLMACHEV, G.M.; USHATSKIY, V.N.; BAK, M.A.; BLINOVA, N.I.; BUGORKOV, S.S.; MOSKAL'KOVA, E.A.; OSIPOVA, V.V.; PETROV, Yu.G.; SOROKINA, A.V.; CHERNYSHEVA, L.P.; SHIRYAYEVA, L.V.

[Yields of certain fragments in U^{235}, U^{238}, and Pu^{239} fission by neutrons] Vykhody nekotorykh oskolkov pri delenii U^{235}, U^{238} i Pu^{239} neitronami deleniia. Moskva, Glav. upr. po ispol'zovaniiu atomnoi energii, 1960. 14 p. (MIRA 17:2)

SOROKINA, F.V.

32986

S/641/61/000/000/013/033
B104/B102

24.6600

AUTHORS: Petrzhak, K. A., Tolmachev, G. M., Ushatskiy, V. N., Bak, M. A., Blinova, N. I., Bugorkov, S. S., Moskal'kova, E. A., Osipova, V. B., Petrov, Yu. G., Sorokina, A. V., Chernysheva, L. P., Shiryayeva, L. B.

TITLE: Yields of some fragments in the fission of U^{235}, U^{238}, and Pu^{239} by fission neutrons

SOURCE: Krupchitskiy, P. A., ed. Neytronnaya fizika; sbornik statey. Moscow, 1961, 217-223

TEXT: The authors determined the yield of Sr^{89}, Zr^{95}, Mo^{99}, Ag^{111}, Cd^{115}, and Ba^{140} in the fission of U^{235}, U^{238}, and Pu^{239} by fission neutrons. A U^{235}-enriched uranium plate arranged in the thermal column of a heavy-water reactor of the AS USSR served as neutron source. 300-mg tablets and 1-μg targets were produced from each substance to be fissioned. The fission events were recorded in a fission chamber during the entire irradiation period (Fig. 1). The fission fragment yields were determined from their

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S/641/61/000/000/013/033
B104/B102

Yields of some fragments in ...

β-activity. The absolute β-activity was measured by two standard instruments with end-window counters. These standard instruments were calibrated with preparations of the fission fragments to be studied which had been applied to a collodium film. The absolute β-activity of the standard preparations was determined either with a 4π-counter or with an end-window counter having a window thickness of 0.005 ± 0.001 mg/cm^2. Six to eight measurements were made in three to four tablets (Fig. 3). The determination error of the fragment yield was between 6 and 11%. The fragment yield is found to depend on the isotope mass number. There are 3 figures, 3 tables, and 7 references: 3 Soviet and 4 non-Soviet. The four references to English-language publications read as follows: Engelkemeir, D., Novey T., Schover D., Radiochemical Studies. The Fission Products, Book 3, div. IV, vol. 9, 1334 (1951); Radiochemical Studies: The Fission Products. Book 3, div. IV, vol. 9, Appendix B, 2003 (1951); Keller R., Steinberg E., Glendenin L., Phys. Rev., 94, 4, 969 (1954); Turkevich A., Niday J., Phys. Rev., 84, 1, 52, (1951).

Card 2/2

GRAUDYNYA, L.Ya.; PETRZHAK, K.A.; SOROKINA, A.V.

Gamma rays produced in inelastic scattering of 2.95 Mev. neutrons on J^{127}, La^{139}, and B^{209}. Izv.AN SSSR.Ser.fiz. 25 no.10:1283-1285 O '61. (MIRA 14:10)
(Neutrons—Scattering) (Gamma rays—Spectra)

S/056/62/042/002/006/055
B102/B138

24.6400

AUTHORS: Graudynya, L. Ya., Kostochkin, O. I., Petrzhak, K. A., Sorokina, A. V.

TITLE: Gamma rays produced in inelastic scattering of 2.95-Mev neutrons on Ta^{181} nuclei

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 2, 1962, 349 - 352

TEXT: With the experimental arrangement shown in Fig. 1 the excitation spectrum was measured with a scintillation gamma spectrometer in annular geometry. Its resolution for the 0.66-Mev gamma lines of Cs^{137} was 10%. The soft spectrum up to 1 Mev was measured using a 286 g metallic Ta ring as scatterer; for the hard spectrum an annular container of organic glass was used, filled with 818 g Ta powder. The measurements were made in the range 0.35-3 Mev. The following gamma peaks were observed: 0.35, 0.42, 0.48, 0.57, 0.62, 0.76, 0.86, 1.24, 1.47, 1.90 and 2.11 Mev. The peaks at 1.79 and 1.60 Mev are attributed to pair production in the NaI(Tl) crystal by 1.90 and 2.11-Mev gamma quanta. There was no 0.958-Mev level, but all

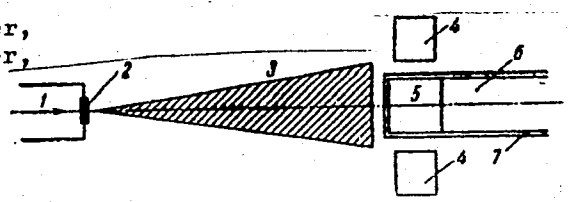
Card 1/2

the gamma transitions observed can be obtained without introducing this level. There are 2 figures, 1 table, and 8 references: 2 Soviet and 6 non-Soviet. The four most recent references to English-language publications read as follows: A. H. Muir, F. Boehm. Phys. Rev. 122, 1564, 1961; F. Boehm, P. Marmier. Phys. Rev., 103, 342, 1956; R. Day. Phys. Rev. 102, 767, 1956; B. Guernsay, A. Wattenberg. Phys. Rev. 101, 1516, 1956.

ASSOCIATION: Radiyevyy institut Akademii nauk SSSR (Radium Institute of the Academy of Sciences USSR)

SUBMITTED: July 17, 1961

Legend to Fig. 1: (1) Deuteron beam; (2) deuterium target, (3) lead shielding cone, (4) annular Ta scatterer, (5) NaI(Tl) crystal, (6) photomultiplier, (7) screen of black paper.



ARON, P.M.; BUGORKOV, S.S.; PETRZHAK, K.A.; SOROKINA, A.V.

Radiochemical determination of the cross section of the $Al^{27}(n,\alpha)Na^{24}$ reaction at a neutron energy of 14.6 Mev. Atom.energ. 16 no. 4:370-372 Ap '64. (MIRA 17:5)

SOROKINA, A.V.

Il'ia Il'ich Mechnikov and the sanitary organization of Kherson. Zhur.mikrobiol., epid. i immun. 42 no.4:148-151 Ap '65. (MIRA 18:5)

1. Moskovskiy institut vaktsin i syvorotok imeni Mechnikova.

SORKINA D.A.

A modified method for the paper electrophoretic determination of proteins. D. A. Sorkina. *Trudy K im. Med. Inst.* 16, 41-4(1954); *Referat. Zhur. Khim., Biol. Khim.* 1955, No. 17020.—A modified paper electrophoretic method is presented for performing 20 or more protein detns. simultaneously. The electrophoretic camera is divided into 9 cells (each of 300-ml. capacity). The central 3 cathode cells are used in common in connection with all the strips of filter paper under test. The remaining 6 lateral cells are anodic. Use was made of C electrodes and of a continuous electric current of 210–80 v. and 3–5 ma. It was shown that a better sepn. of blood serum proteins (0.005 ml.) is obtained with the firmer types of U.S.S.R. filter paper and a 14 hr. test period by using a veronal buffer of pH 8.6 and ionic strength of 0.05. At the completion of the sepn., the paper strips are dried, sprayed with a mixt. of 0.05% soln. of bromophenol blue in 5% CH_3CO_2H and 1% $HgCl_2$. The strips were then washed several times in 5% CH_3CO_2H. For the quant. estn. of the protein fractions, the developed spots are extd. with 0.1*N* NaOH and detns. made colorimetrically. B. S. Levine.

(1)

SORKINA, D. A.

Changes in the blood-serum proteins in the process of transportation of different substances. G. V. Troitskii and D. A. Sorkina (Crimean Med. Inst., Simferopol). *Biokhimiya* 21, 781-92(1956).—The expts. were performed with rabbits of both sexes weighing 1200–2000 g. Aldehydes were injected subcutaneously in the abdominal region in 0.5–1.0 ml. doses. Formaldehyde was used as a 40% soln.; acetic and butyric aldehydes were used without previous diln. Thirty min. prior to the injection and 3 days after the aldehyde injection 5 ml. of blood was taken from the marginal ear vein. The results of the expts. showed that aldehyde increased the α- and β-globulins of the blood serum *in vitro* after incubation and *in vivo* upon subcutaneous injection. A complementary globulin fraction (α) appeared in the *in vivo* and the *in vitro* expts. By the methods of ring repptn. and electrophoretic analysis it was shown that the protein changes were of the same type. Similar changes were observed in the blood-serum proteins following the treatment with some quinones. It appeared that due to the high adsorptive capacity of the β- and α-globulins, adsorption complexes easily formed between the changed proteins and the basic groups of α- and β-globulins, which detd. the electrophoretic motility of the complex. The transposition of some of the low-mol. wt. substances (including the water-sol.) took place with the participation of the blood protein which, in some instances, changed so profoundly as to be included in the groups of α- and β-globulins.

B. S. Levine

Chair of Biol Chem.

T

USSR/Human and Animal Physiology. Blood. Blood Chemistry.

Abs Jour: Ref Zhur-Biol., No 20, 1958, 93066.

Author : Troitskiy, G.B., Serokhina, D.A.
Inst : Chair Biol Chem, ~~Ukrainsk~~ Med Inst.
Title : The Origin of α- and β-Globulins in Blood Plasma.

Orig Pub: Ukr. biokhim. zh., 1957, 29, No 3, 340-346.

Abstract: A genetic relationship was established between α- and β-globulins and other plasma proteins; in "injurious reactions" (a name applied instead of the terminology "denaturization") in blood serum both in vivo and in vitro there were increments in α- and β-globulins. The author called this manifestation α,β-globulinization. A study was made of rabbit serum (by electrophoresis) after perfusion through the isolated heart of the rabbit and sera of

Card : 1/2

SOROKINA, D.I.

Result of treating skin diseases with ultraviolet rays and adhesive plaster. Vest.derm. i ven. 32 no.5:60-62 S-O '58 (MIRA 11:11)

1. Iz Leningradskogo gorodskogo kozhno-venerologicheskogo dispansera (glavnyy vrach V.I Olekhnovich).

(SKIN DISEASES, ther.
ultraviolet rays & adhesive palster (Rus))
(ULTRAVIOLET RAYS, ther. use
skin dis. with adhesive plaster (Rus))
(BANDAGING AND DRESSING,
adhesive plaster in skin dis., with ultraviolet rays (Rus))

SOROKINA, E. A.

"The Problem of the Etiopathogenesis and Early Diagnosis of Thrombothlebitic Splenomegaly in Children," Vop. Ped. i. Okhran. Mater. i Det. 16, No. 5, 1948. Student, Chair. Faculty Pediatrics.. Leningrad Pediatrics Inst., -c1948-.

SOROKINA, E. A.

27373

Ranniye simptomy i lyechyeniye kostno-sustavnogo tubyerkulyeea. myed. syestra, 1949, No. 8, s. 9-11

SO: LETOPIS' NO. 40

7

L 54817-65 FBD/EWT(l)/EWG(v)/EEC(t)/EEC-4 Po-4/Pe-5/Pae-2/Pi-4 GW/WS-4
UR/0141/65/008/002/0219/0228

ACCESSION NR: AP5014498

AUTHOR: Kamenskaya, S. A.; Kislyakov, A. G.; Krotikov, V. D.; Naumov, A. I.; Nikonov, V. N.; Porfir'yev, V. A.; Plechkov, V. M.; Strezhneva, K. M.; Troitskiy, V. S.; Fedoseyev, L. I.; Lubyako, L. V.; Sorokina, E. P.

TITLE: Observation of the radio eclipse of the moon at millimeter wavelengths

SOURCE: IVUZ. Radiofizika, v. 8, no. 2, 1965, 219-228

TOPIC TAGS: radioastronomy, lunar eclipse, brightness temperature, lunar surface material

ABSTRACT: The radio emission from the moon was measured during the eclipses of 7 July and 30 December 1963, by a procedure in which the antenna was periodically compared with a standard signal which consisted of the difference between the emission of a section of the sky of fixed altitude and a mountain slope having a temperature close to that of the surrounding air. The work was done at Mt. Aragats in Armenia (3250 m) on 7 July and in Usuriys (Prikmorskiy kray) on 30 December. Several refinements were introduced to correct for the variation of the height of the moon during the time of the eclipse. The maximum relative drop of effective temperature was ~ 17%, ~ 8%, 8 ± 2%, 5 ± 2%, and 3 ± 2% at wave-

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L 5h817-65

ACCESSION NR: AP5014498

2

lengths 1.2, 2.1, 4.0, 7.5, and 16 mm in the eclipse of 7 July and 22.5 ± 2.5%, 12 ± 2%, and 8 ± 2% at wavelengths 1.2, 4.0, and 6.0 mm in the eclipse of 30 December. The best agreement between the observation data and the theoretically predicted course of the radio brightness temperature during the eclipse, for a homogeneous model of the moon, is obtained if $\gamma/b = (6 \pm 1.5 \text{ and } 1.0) \times 10^4$. $\gamma = (k\rho c)^{-1/2}$ (k--thermal conductivity, ρ--density, c--specific heat, b--tangent of dielectric loss angle of the lunar material). This value of γ/b agrees with previously obtained value measured by a different method. "We thank the Director of the Institute of Physics, Armenian Academy of Sciences, A. I. Alikhanyan for the opportunity of performing the work on the high-mountain base of the Institute and for help." Orig. art. has: 2 figures and 1 table. [02]

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Radiophysics Scientific Research Institute at the Gor'kiy University)

SUBMITTED:	00	ENCL:	00	SUB CODE:	AA, EC
NO REF SOV:	006	OTHER:	004	ATD PRESS:	4029

Card 2/2

ACC NR: AT6033289 SOURCE CODE: UR/0141/66/009/005/0975/0979

AUTHOR: Goronina, K. A.; Belov, P. K.; Sorokina, E. P.

ORG: Scientific Research Radiophysics Institute at the Gor'kiy University (Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete)

TITLE: Determination of the dielectric constant from the change of polarization of a reflected wave

SOURCE: IVUZ. Radiofizika, v. 9, no. 5, 1966, 975-979

TOPIC TAGS: dielectric constant, electric polarization, electromagnetic wave reflection, [illegible], phase shift, refractive index, dielectric loss

ABSTRACT: The authors show that since a definite relation exists between the complex reflection coefficient and the dielectric constant, and since a connection exists between the dielectric constant and the change in polarization of the wave reflected from the investigated medium, it is possible to determine the dielectric constant by measuring the polarization of the reflected wave. It is also shown that for an experimental determination of the ratio of the principal axes of the polarization ellipse and their orientation it is possible to use a receiver for linearly polarized waves, and that the optimal angle of incidence is the so-called principal angle, at which the phase shift between the polarization components is equal to 90°. The authors then describe a setup for the measurement of the dielectric constant of water in the millimeter band (Fig. 1). The waves were generated by a backward-wave oscil-

Card 1/2 UDC: 621.317.335.3

ACC NR: AP6033289

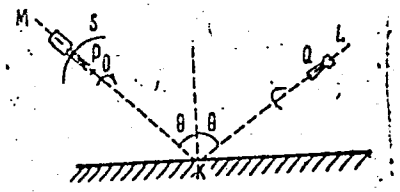

Fig. 1. Block diagram of setup. S - Parabolic mirror, P - rectangular waveguide, O - reflector, Q - receiving horn antenna.

lator and shaped by a parabolic mirror and a rectangular waveguide. The reflected wave is received by a horn antenna and is guided to the receiver by a waveguide operating in the TE_{01} mode. The polarization is measured by rotating the receiving antenna together with the detector. The test procedure is described in detail. The dielectric constant of water was measured at 16C at several wavelengths from 1.2 to 1.6 mm. The values agree well with the theoretical Debye formula for the dielectric constant of water and with measurement results by others. The temperature variation of the refractive index and of the dielectric loss angle were found to deviate from the Debye formula, especially at higher temperatures. Orig. art. has: 3 figures, 4 formulas, and 1 table.

SUB CODE: 20/ SUBM DATE: 26Jan66/ ORIG REF: 001/ OTH REF: 002

Card 2/2

SOROKINA, E. Z.

SOROKINA. E. Z.: "The clinical aspects of the early period of primary tuberculous infection in young children and the early detection f tuberculosis in childhood." Acad Med Sci USSR. Inst of Tuberculosis. Moscow, 1956 (Dissertation for the Degree of Candidate in Medical Science)

So. Knizhanava Letopis', No 17, 1956

VEDRASHKO, Viktoriya Fedorovna; SOROKINA, E.Z., red.; ZAKHAROVA, A.I., tekhn. red.

[Organization of nutrition for children in children's institutions] Organizatsiia pitaniia detei v detskikh uchrezhdeniiakh. Moskva, Gos. izd-vo med. lit-ry Medgiz, 1961. 195 p. (MIRA 14:9)

(CHILDREN--NUTRITION)

SOV/79-29-8-18/81

5(3)
AUTHORS: Terent'yev, A. P., Preobrazhenskaya, M. N., Bobkov, A. S., Sorokina, G. M.

TITLE: Introduction of Substituents Into the Benzene Nucleus of Indole. IV. Synthesis of Bromo-, Nitro- and Aminoindoles and Indolines (Ref 22)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2541-2551 (USSR)

ABSTRACT: In the present paper, the authors used the scheme previously carried out by them regarding the synthesis of indoles substituted in the benzene nucleus (Ref 1) also for the synthesis of 6-nitro- and 6-nitro-methylindole. The initial products were indoline (I) and 2-methylindoline (II). Indole can be converted into indoline (I) by hydrogenation in the autoclave on Reney's nickel catalyst at 100° and 100-150 atm (Ref 2). Compound (II) was obtained according to scheme 2 by reduction of methyl indole with zinc in hydrochloric acid (Ref 3). According to the nitration of compound (II) described in a publication (Ref 4), compound (I) gave, on nitration, compound (III) in quantitative yield, which was converted into (V) by acylation. In the present

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SOV/79-29-9-15/76

5(3)
AUTHORS: Terent'yev, A. P., Preobrazhenskaya, M. N., Sorokina, G. M.

TITLE: Introduction of Substituents Into the Benzene Ring of Indole. V. Synthesis of the Ketones of the Indole Series (Ref 1).

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 2875-2881 (USSR)

ABSTRACT: The present paper describes the synthesis of the indoles acylated in position 5, by dehydrogenation of the respective indolines. The behavior of indolines in the Friedel-Crafts reaction had hitherto scarcely been investigated (Refs 1-6). Initial products were 1-acetyl indoline (IV) and 1-acetyl-2-methyl indoline (V). Both these compounds were caused to react with acetyl chloride or chloroacetyl chloride according to F. Kunckell (Ref 7) in carbon disulphide medium and with $AlCl_3$ as catalyst (Reaction Scheme 1). 1,5-diacyl indolines (VI), (VII), and 1-acetyl-5-chloroacetyl indolines (VIII), (IX) were obtained in high yields. Aside from compound (VIII), the reaction of compound (IV) with chloroacetyl chloride and $AlCl_3$ yields a small amount of a product (X) which is probably an isomer of compound (VIII). The hydrolysis of the obtained 1,5-diacyl indolines with diluted hydrochloric acid yielded

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Introduction of Substituents Into the Benzene Ring of Indole. V. Synthesis of the Ketones of the Indole Series (Ref 1)

5-acetyl indoline, 5-chloroacetyl indoline, 5-acetyl-2-methyl indoline, and 5-chloroacetyl-2-methyl indoline (XI-XIV) (yield 80-90%) (Reaction Scheme 2). The following indoles were obtained when boiling the corresponding 5-acyl indolines with chloroaniline in xylene: 5-acetyl indole, 5-chloroacetyl indole, 5-acetyl-2-methyl indole, 5-chloroacetyl-3-methyl indole (XV-XVIII). The Beckmann rearrangement of oxime of 5-acetyl indole yielded 5-acetamino-1-acetyl indoline, thus proving the structure of the ketones of the indole and indoline series obtained. Compounds (XIII, XIV) irritate the skin and excite tears. The infrared absorption spectra of indolines differ from those of the obtained indoles. The spectra of ketones, taken with the spectrophotometer of type SF-4, of the indole series are identical (Figs 1, 2, 3). In the Friedel-Crafts reaction of 1-acetyl indoline with chloroacetyl chloride a mixture is formed of 1-acetyl-5-chloroacetyl indoline and another isomer in the ratio of 9 : 1. Reduction of 5-acetyl indoline or 5-chloroacetyl indoline according to Klemmensen leads to 5-ethyl indoline. There are 3 figures, 3 tables, and 11 references, 3 of which are Soviet.

SOV/79-29-9-15/76

Introduction of Substituents Into the Benzene Ring of Indole. V. Synthesis of the Ketones of the Indole Series (Ref 1)

ASSOCIATION: Moskovskiy gosudarstvennyy universitet
(Moscow State University)

SUBMITTED: July 3, 1958

Card 3/3

SUVOROV, N.N.; MOROZOVSKAYA, L.M.; SOROKINA, G.M.

Indole derivatives. Part 10: Novel synthesis of 5-hydroxytryptophan. Zhur. ob. khim. 31 no.3:936-941 Mr '61. (MIRA 14:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut imeni S. Ordzhonikidze.
(Tryptophan)

DYKHNO, L.A.; SAMOKHINA, G.P.; [illegible], L.L.

Pathological changes in the chorioallantoic membrane of a chick embryo following inoculation with different strains of Mycobacterium tuberculosis. Probl. tuberk. 41 no.2:51-58'63 (MIRA 17:2)

1. Iz kafedry mikrobiologii (zav. - prof. N.A.Lebedeva) i kafedry gistologii i embriologii (zav. - prof. V.G.Yeliseyev) I Moskovskogo ordena Lenina meditsinskogo instituta imeni Sechenova.

SOROKINA, G.P.

Detection of incomplete typhoid antibodies using the indirect Coombs test. Zhur. mikrobiol., epid. i immun. 42 no.6:29-34 '65. (MIRA 18:9)

1. Moskovskiy institut epidemiologii i mikrobiologii.

SOROKINA, G.V.

Silts in the classification of soils from the viewpoint of engineering geology. Trudy Lab. gidrogeol.probl. 14:216-221 '57.
(Silt) (MIRA 11:5)

SOROKINA, G. V.

Experimental investigation of ultimate shearing stress and strength of mud soils. [Trudy] NIIOSP no.33:57-69 '58. (MIRA 11:9)
(Soil mechanics)

SOROKINA, G. V. Cand Tech Sci -- (diss) "Laws of the deformation of silts."

Mos, 1959. 15 pp (Acad of Construction and Architecture USSR. Sci Res Inst of Foundations and Subterranean Structures), 150 copies (KL, 46-59, 138)

SOROKINA, G.V.

Physical and mechanical properties of sea silts. [Trudy] NIIOSP no.42:26-34 '60. (MIRA 13:6)
(Silt)

GORSHKOVA, G.V.; PAVLOVA, L.A.

Structural classification of some silt. Uzb. tr. Mikrob. no.54:103-129 '64. (MIRA 17:10)

Sorokina, I.B.

SOROKINA, I.B.

Study of the combined action of 6-mercaptopurine and some chloroethylamine preparations on transplantable mouse tumors [with summary in English]. Vop.onk. 3 no.6:683-687 '57. (MIRA 11:2)

1. Iz laboratorii eksperimental'noy khimioterapii (zav. - chlen-korrespondent AMN SSSR prof. L.F.Larionov) Instituta eksperimental'noy patologii i terapii raka AMN SSSR (dir. - chl-korr. AMN SSSR prof. N.N.Blokhin) Adres avtora: Moskva, 110, 3-ya Meshchanskaya ul. d.61/2, korp. 9, Institut eksperimental'noy patologii i terapii raka.

(MERCAPTOPURINE, eff.
on exper. transplantable tumors, in combined action with nitrogen mustards)
(NITROGEN MUSTARDS, eff..
on exper. transplantable tumors, in combined action with 6-mercaptopurine)

SOROKINA, I.B.

Lowered effect of sarcolysin on hemopoiesis in rabbits following preliminary administration of colchicine [with summary in English]. Biul.eksp.biol. i med. 43 no.1:67-70 Ja '57. (MLRA 10:8)

1. Iz laboratorii eksperimental'noy khimioterapii (zav. - chlen-korrespondent AMN SSSR prof. L.F.Larionov, rukovoditel' raboty - kandidat meditsinskikh nauk G.L.Zhdanov) Instituta eksperimental'noy patologii i terapii raka (dir. - chlen-korrespondent AMN SSSR prof. N.N.Blokhin) AMN SSSR, Moskva. Predstavlena deystvitel'nym chlenom AMN SSSR prof. A.D.Timofeyevskim.

(PHENYLALANINE, related compounds,
p-bis-(β -chloroethyl) aminophenylalanine, eff. on hemopoietic system, eff. of preliminary admin. of colchicine (Rus))
(CYTOTOXIC DRUGS, effects,
p-bis-(β -chloroethyl)aminophenylalanine, on hemopoietic system, eff. of preliminary admin. of colchicine (Rus))
(HEMOPOIETIC SYSTEM, effect of drugs on,
p-bis-(β -chloroethyl)aminophenylalanine, eff. of preliminary admin. of cholchine (Rus))
(COLCHICINE, effects,
on hemopoietic response to p-bis-(β-chloroethyl) aminophenylalanine (Rus))

SOROKINA, I. B. Cand Biol Sci -- (diss) "Combined chemiotherapy of tumors (Experimental study)." Mos, 1959. 10 pp (Acad Med Sci USSR), 200 copies (KL, 52-59, 119)

ZHDANOV, G.L.; SOROKINA, I.B.; KIRSANOVA, V.A.; SHARLIKOVA, L.F.

Some principles of combined chemotherapy for tumors. Vop. onk. 6 no. 10:77-83 0 '60. (MIRA 14:1)
(CYTOTOXIC DRUGS)

ZHDANOV, G.L.; SHCHUKINA, L.A.; SOROKINA, I.B.; MAL'KOVA, V.P.; SEDOV, K.A.; RYABOVA, I.D.; SEMKIN, Ye.P.

Study of the biological activity of N-dichloroacetyl-D, L-serine. Dokl. AN SSSR 143 no.5:1222-1224 Ap '62. (MIRA 15:4)

1. Institut khimii prirodnykh soyedineniy AN SSSR. Predstavleno akademikom M.M.Shemyakinym.

(Serine)

ZHDANOV, G. L.; SOROKINA, I. B.; MAL'KOVA, V. P.; SEMKIN, Ye. P.

Role of individual molecule groupings of N-dichloroacetyl-D, L-serine in its biological activity. Dokl. AN SSSR 147 no.6: 1510-1511 D '62. (MIRA 16:1)

1. Predstavleno akademikom M. M. Shemyakinym.

(Serine) (Regeneration(Biology))

ZHDANOV, G.L.; SOROKINA, I.B.; MAL'KOVA, V.P.; NOVIKOVA, M.A.; CHESTUKHIN, A.V.

Stimulation of cell division by dichloroacetyl compounds. Dokl. AN SSSR 151 no.5:1198-1200 Ag '63. (MIRA 16:9)

1. Institut khimii prirodnykh soyedineniy AN SSSR. Predstavleno akademikom M.M.Shemyakinym.
(ACETIC ACID) (CELL DIVISION (BIOLOGY))

SEDOV, K.A.; ZHDANOV, G.L.; SOROKINA, I.B.

Comparative evaluation of the effect of some antibiotics on LA leukemia in $C_{57}BL$ line mice. Antibiotiki 10 no.1:67-71 Ja '65. (MIRA 18:4)

1. Laboratoriya biologicheskikh ispytaniy Instituta khimii prirodnykh soyedineniy AN SSSR, Moskva.

ZHDANOV, G.L.; SOROKINA, I.B.; MAL'KOVA,V.P.

Effect of antitumoral compounds on the regeneration of the liver in rats. Dokl. AN SSSR 161 no.5:1235-1237 Ap '65. (MIRA 18:5)

1. Institut khimii prirodnykh soyedineniy AN SSSR. Submitted June 22, 1964.

SOROKINA, I.B.; ORESHNIKOVA, N.A.; MAL'KOVA, V.P.; NOVIKOVA, M.A.; ZHDANOV, G.L.

Effect of the content of nicotinamide adenine nucleotide in tumorous and regenerating tissues on their sensitivity to sarcolysine. Vop.med.khim. 11 no.6:43-47 N-D '65. (MIRA 18:12)

1. Institut khimii prirodnykh soyedineniy AN SSSR, Moskva.
Submitted July 16, 1964.

BORISOV, Ye.F., dots.; BREGEL', E.Ya., prof.; BUKH, Ye.M., dots.; VASHENTSEVA, V.M., dots.; GOLEVA, Yu.P., kand. ekon. nauk; GOLEVA, A.P., kand. ekon. nauk; DEMOCHKIN, G.V., dots.; DONABEDOV, G.T., kand. ekon. nauk; YERMOLOVICH, I.I., dots.; KALYUZHNYY, V.M., dots.; KORNEYEVA, K.G., dots.; KUZNETSOVA, A.S., prof.; MIROSHNICHENKO, V.S., dots.; MYASNIKOV, I.Ya., kand. ekon. nauk; PIKIN, A.S., dots.; SIDOROV, V.A.; SMIRNOV, A.D., dots.; SOLOV'YEVA, K.F., dots.; SOROKINA, I.F., dots.; TARUNIN, A.F., kand. ekon. nauk; KHARAKHASH'YAN, G.M., prof.; MENDEL'SON, A.S., red.; SHVEYTSER, Ye.K., red.; ROTOVA, R.S., red.; GARINA, T.D., tekhn. red.

[Economics of socialism] Politicheskaia ekonomiia sotsializma. Moskva, Gos.izd-vo "Vysshaia shkola," 1963. 476 p. (MIRA 17:2)

ARIYEVICH, A.M.; VIKHREVA, O.G.; TYUFILINA, O.V.; LIVANOVA, N.K.; BLUDOVA, N.M.; VATOLINA, V.M.; SHEKLAKOVA, A.A.; KEMENEVA, M.P.; VARDASHKINA, M.A.; SOROKINA, I.I.

New trends in the treatment of fungal diseases of the skin. Sov. med. 26 no.6:52-56 Je '62. (MIRA 15:11)

1. Iz mikologicheskogo otdela (zav. - prof. A.M.Ariyevich) TSentral'nogo kozhno-venerologicheskogo instituta i klinicheskoy kozhno-venerologicheskoy bol'nitsy imeni Korolenko, Moskva.
(DERMATOMYCOSIS) (GRISEOFULVIN) (FUNGICIDES)

BOGDANOV, V.I.; SOROKINA, I.I.

Subsurface structure of the Monche-Chuna-Tundras region according to geophysical data. Vop.razved.geofiz. no.4: 93-102 '64. (MIRA 19:1)

DYKHANOV, N.N.; SOROKINA, I.N.

Sulfurylchloride and phosphoryl chloride as chloranhydrating substances in the synthesis of ethylisonicotinate. Med. prom. 14 no.5:36-38 My '60. (MIRA 13:9)

1. Khimiko-farmetsevticheskiy zavod "Akrikhin".
(ISONICOTINIC ACID)

GERONIMUS, B.; SOROKINA, K.

Planning automotive transportation with the aid of electronic calculating machines. Sots. trud 8 no.5:65-70 My '63. (MIRA 16:6)

(Moscow Province—Transportation, Automotive—Freight)

(Moscow Province—Electronic data processing)

GERONIMUS, Boris L'vovich; SOROKINA, Kapitolina Mikhaylovna; BARANOV, A.Ya., red.; BODANOVA, A.P., tekhn. red.

[Use of electronic digital computers in planning automobile freight transportation] Primenenie elektronnykh vychislitel'nykh mashin dlia planirovaniia avtomobil'nykh perevozok. Moskva, Avtotransizdat, 1963. 55 p. (MIRA 16:6)
(Electronic digital computers)
(Transportation, Automotive)

SOROKINA, K.V.

Static balancing of the watch escapement. Izv.vys.ucheb.zav.;prib. 7 no.5:115-121 '64. (MIRA 17:12)

1. Leningradskiy institut tochnoy mekhaniki i optiki. Rekomendovana kafedroy priborov vremeni.

SOKOLKIN, A. P.

The separation of double iron-tungsten carbides from chromium carbides. N. M. Popova and K. P. Sorokina. *Zavodskaya Lab.* 21, 827–30(1955).—The sepn. of Cr carbides from the others in Cr-Ni-W steels is based on the Cr carbide passivation in a mixt. of H_2O_2 and HCl, while cementite and the double carbides are dissolved. W. M. S.

Sorokina, K.P.

✓The nonisomorphic nature of the structures in iron alloys containing molybdenum and tungsten.[27] D. F. Zhuravov, N. F. Lashko, and K. P. Sorokina. *Zhur. Neorg. Khim.* 1, 2588–9(1956).—The peculiarities were studied of the intermetallic phases in Fe alloys contg. equal amts. of Cr, Ni, and Mn and to which equiv. amts. of Mo or W were added. In complex Fe alloys that contain W or Mo, nonisomorphic structures may emerge; such alloys have different properties. J. Rovtar Leach

27 6 4E2c

SOROKINA, K.P.

AUTHORS Blok, N.I., Lashko, N.F., Sorokina, K.P., Khimushin, F.F. 32-8-3/61

TITLE The Phase Analysis of Chromium-Nickel-Titanium Steels with Intermetallic Binding. (Fazovyy analiz khromonikeltitanovykh staley s intermetallidnym uprochneniyem.)

PERIODICAL Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 8, pp.901-903 (USSR)

ABSTRACT In the paper a new method of the electrolytical distribution of phases in steel types with intermetallic binding is shown. A typical kind of steel (0,05% C; 19,45 % Ni; 2,53 % Ti; 11,65 % Cr; 0,85 % Al; 0,02 % B) was used as testing object. The action of the pH of the solution, temperature and current density were investigated. The following best suitable electrolysis conditions for the separation of quantitative anode precipitations were determined: current density 0,05 a/cm^2, temperature of the tank $< 10^o$, pH from 2,2 to 4,9. In order to avoid oxygen separation on the anode 10% CH_3OH was added to the tank. The concentration of copper sulfate should not exceed 5 % because of the increase in acid development. For buffering the solution 8 % triply substituted ammonium citrate is added. The

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The Phase Analysis of Chromium-Nickel-Titanium Steels with Intermetallic Binding.

temperature in the tank has to be kept at 0°C. In the given case it was found out that in the above-mentioned steel sample the following is to recommended for the phase analysis: an electrolyte of 50 g $CuSO_4$, 80 g triply substituted ammonium citrate, 100 ml methanol per 1 liter water, current density D = 0,05 % a/cm^2, pH = 4-4,5, temperature of the tank 0-5°C, duration of the electrolysis 2-3 hours. For the chemical analysis the anode deposits are quantitatively separated. Their X-ray structure analysis is performed according to the method by Pulver in Kα-radiation. In the case of most steel alloys the phase β-Ni_3Ti remains metastable and upon alloy formation it is converted into the α-Ni_3Ti stable modification. In the aging process the phase may partially alter. The high quality properties of the steel alloy are due to the dispersive ability of the β-Ni_3Ti phase. Due to aging within the temperature interval 650-875°C β-Ni_3Ti phase is separated and converted into melt. (5 illustrations and 2 tables)

ASSOCIATION: None given.
AVAILABLE: Library of Congress.
CARD 2/2

5(2), 18(6), 18(7) SOV/78-4-7-24/44

AUTHORS: Lashko, N. F., Sorokina, K. P.

TITLE: The Phase-analysis of the Copper Corner of the System Copper - Nickel - Silicon (Fazovyy analiz mednogo ugla sistemy med' - nikel' - kremniy)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 7, pp 1613-1615 (USSR)

ABSTRACT: The phase composition of the copper corner in the Cu - Ni - Si system and in industrial Ni-Si-bronzes has not yet been explained. References 1-4 contain contradictory data. In order to explain these contradictions, alloys with 1.5% Si and 3, 7, 12 and 20% Ni as well as 1.5-5% Si and 20-25% Ni were produced (Fig 1). The electrolytic phase separation was carried out in electrolytes consisting of aqueous solutions of copper sulfate and ammonium citrate. Current density amounted to 0.05 a/cm^2. Table 1 shows the X-ray structural analysis by means of K_2-radiation of copper for the precipitates obtained from alloys containing 1.5% Si. In alloys with 1.5-5% Si and 20-25% Ni the phases Ni_3Si and Ni_5Si_2 were found. Chemical analyses of the precipitates of alloys with 1.5% Si and 7, 12, and 20% Ni after

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The Phase-analysis of the Copper Corner of the System Copper - Nickel - Silicon

various thermal treatments are given in table 2. The precipitates consisted of the phases Ni_5Si_2, Ni_3Si and ∂-Ni_2Si. All phases were free from copper. In alloys of up to 7% Ni the solid solution is in equilibrium with the phase ∂-Ni_2Si. In alloys with 12% Ni the equilibrium phase was Ni_5Si_2 at 500-700°, and in alloys with 20-25% Ni it was the phases Ni_5Si_2 and Ni_3Si. There are 1 figure, 2 tables, and 5 refer[illegible]es, 3 of which are Soviet.

SUBMITTED: April 12, 1958

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SOV/32-25-6-5/53

18(7)
AUTHORS: Sorokina, K. P., Blok, N. I., Lashko, N. F.

TITLE: Phase Analysis of Chromium-Nickel-Titanium Steels With Intermetallide Hardening (Fazovyy analiz khromonikel'titanovykh staley s intermetallidnym uprochneniyem)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 6, pp 659 - 661 (USSR)

ABSTRACT: It had already been shown (Ref 1) that the hardening phase in the steel type EI-696 is the phase β-Ni_3Ti which exhibits a face-centered crystal lattice. Further phase analyses of this steel revealed that the two intermetallide phases Fe_2Ti and α-Ni_3Ti with a hexagonal crystal lattice occur after heating up to 800-950°. Since also titanium carbide and titanium boride are present as primary phases, this steel exhibits as much as 6 phases. An electrolytic phase separation in the electrolyte Nr 5 (50 g copper sulphate, 80 g triammonium citrate and 100 ml methanol per 1 l of water) was carried out, and a quantitative separation of the phases β-Ni_3Ti and TiC was obtained. The content of elements in the phase β-Ni_3Ti was obtained from the difference after a second dissolution

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in the electrolyte 81 (50 ml HCl, 100 ml glycerin and 1050 ml methanol) (Ref 2). Satisfactory results were also obtained with the method TsNIIChM (Ref 3) (Table 1, results from both methods). The electrolytic dissolution of the steel EI-696 heated for 100 hours over 800°, yielded titanium carbide and -diboride and the intermetallide phases Fe_2Ti and α-Ni_3Ti at the anode (Table 2). A prolongation of the duration of treatment of the anode precipitate with the electrolyte 81 showed no influence on the result of the X-ray structural analysis (Table 3) and the phases Fe_2Ti and α-Ni_3Ti could not be separated chemically. The steel EI-696 thus represents a six-phase system: the hardening fundamental phase β-Ni_3Ti, the phases Fe_2Ti and α-Ni_3Ti, the two primary phases TiC and TiB_2, and the solid solution. There are 1 figure, 3 tables and 3 Soviet references.

18(7) SOV/32-25-9-10/53

AUTHORS: Blok, N. I., Kozlova, M. N., Lashko, N. F., Sorokina, K. P.

TITLE: Boride Phases in Alloys on the Nickel - Chromium Basis

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 9, pp 1059-1064 (USSR)

ABSTRACT: It was ascertained by experiment that the heat-resistivity of the alloys (A) on nickel-chromium basis increases greatly with a small content of boron. Metallographic investigations showed that at 0.01 - 0.5% of B, eutectic deposits of the boride phase occur at the grain boundaries. A method for the phase analysis of such (A) was elaborated, in which the boride phases are separated electrolytically. The phases separated were subjected to X-ray structural investigations and chemical analyses. N. M. Rudneva, Ye. A. Vinogradova, and K. V. Smirnova took part in the experimental part of the work. (A) of the type EI473 (up to 0.23% B) (I), cast alloys ZhSZ (up to 0.22% B)(II), EI617 (up to 0.5% B) (III), and the combined (A) ZhSZ (IV)(Table 1) were used. For the quantitative separation of the boride phases the following anhydrous electrolyte was the most suitable; 50 ml HCl (1.19), 100 ml glycerin and 1050 ml methanol (Ref 2). Electrolysis took

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place for 60-90 minutes at a current density of 0.06 a/cm^2 under ice-cooling. The chemical and X-ray structural analyses of the anode precipitates showed (Table 2). that practically the entire B occurs in the (A) as a compound. Besides, the boride phase, titanium nitride was found in (I), and separated from chromium boride (Table 3) according to the method (Ref 4). Formula $(Cr, Ni)_5B_4$, or $(Cr, Ni)_4B_3$ corresponds approximately to the boride phase (phase X) from (I), which shows a tetragonal crystalline structure. A combined boride (phase Y) of the incidental formula $(Mo,Cr,W,Ni)_4B_3$, or $(Mo,Cr,W,Ni)_5B_4$ is formed by an increase of the borium content in (II), (III), and (IV). The crystalline structure of this phase could not be ascertained. It is assumed that this phase is a ternary, or more complicated compound. Data of X-ray structural analysis according to the powder method for the two phases X and Y are given (Table 4). There are 2 figures, 4 tables, and 3 references, 2 of which are Soviet.

S/593/60/000/000/007/007
D204/D302

AUTHOR: Sorokina, K.P.

TITLE: None given

SOURCE: Soveshchaniye po khimicheskomu kontrolyu proizvodstva v metallurgicheskoy i metalloobrabatyvayushchey promyshlennosti. Dnepropetrovsk, 1958. Khimicheskiy kontrol' proizvodstva v metallurgicheskoy i metalloobrabatyvayushchey promyshlennosti; [doklady soveshchaniya] [Dnepropetrovsk] 1960, 313 - 314

TEXT: The author comments on the work of V.F. Mal'tsev and L.P. Luk'yanenko, who studied the electrolytic separation of carbides from stainless steel, using an electrolyte suggested by H.M. Popova and A.F. Platonova (10 N KCl and hyposulphite). The same electrolyte was also tried, replacing the hyposulphite with thiourea. The present throws doubt on the high Ni contents (1.5 %) found in the carbides by Mal'tsev and Luk'yanenko, on the basis of past work in which very little Ni ($\sim$ 0.1 %) was found in the carbides from high-

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alloy steels containing up to 20 % Ni and Cr, using a hyposulphite electrolyte. A 'carbide' electrolyte consisting of methanol and HCl is to be preferred despite its toxicity, giving no undesirable side reactions and obviating the need for an alkaline treatment of the deposit when W or Mo are present in the steel examined. This electrolyte was used by N.I. Blok of the author's Institute [Abstractor's note: Name not mentioned] for separating carbides, borides and nitrides from multicomponent alloys and steels.

18.1130 1208, 1196, 1454, 1045

S/032/61/027/003/002/025
B118/B203

AUTHOR: Sorokina, K. P.

TITLE: Differentiated phase analysis of an ЭИ481 (EI481) complex alloy steel

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 3, 1961, 253-256

TEXT: The heat resistance of this steel is determined by the content of $Cr_{23}C_6$, VC, and NbC, and the distribution of these disperse phases. The investigation of the phase composition of steel after thermal treatment and various mechanical influences described in the present paper is of practical interest. Composition of the steel studied: 0.35% C; 12.23% Cr; 7.55% Ni; 8.2% Mn; 1.14% Mo; 1.55% V; 0.31% Nb; residue Fe. The phase separation was performed by electrolysis at a current density of 0.05 a/cm^2. Three electrolytes were tested: 1) 50 ml of HCl, 100 ml of glycerin, 1050 ml of methanol; 2) 75 g of KCl, 50 ml of HCl, 5 g of $Na_2S_2O_5$, 1000 ml of water; 3) 75 g of KCl, 100 ml of HCl, 5 g of citric acid, 5 g of thiocarbamide, 1000 ml of water. The first electrolyte gave the best results and was,

Differentiated phase ...

therefore, used for further experiments. The anodic precipitates were analyzed by the following scheme:

Anodic precipitate
VC + NbC + $Cr_{23}C_6$

boiling with
$HCl + H_2O_2$

precipitate 1: $Cr_{23}C_6$
filtrate 1: VC + NbC

boiling with
HNO_3

precipitate 2: NbC
filtrate 2: VC + $Cr_{23}C_6$

The anodic precipitates were also studied by X-ray structural analysis. The

Differentiated phase ...

steel specimens to be investigated were pretreated as follows: hardening at 1150°C, cooling in air for 2 hr; aging at temperatures between 550 and 1000°C for 16 hr. Test results are shown in the figure (relationship between aging temperature, steel hardness, and content of $Cr_{23}C_6$, or VC, respectively). Hence, the maximum content of VC corresponds to maximum hardness at an aging temperature between 730 and 820°C. Irrespective of thermal treatment, Nb always exists in the form of NbC which neither contains iron nor chromium, and dissolves very small amounts of Mo and V only. Cubic $Cr_{23}C_6$ contains small amounts of Mn, Mo, V, and up to 40-50% of Fe. C. G. Georgiyeva and K. V. Smirnova assisted in this investigation. A paper by N. M. Popova and A. F. Platonova is mentioned. There are 1 figure, 2 tables, and 6 Soviet-bloc references.

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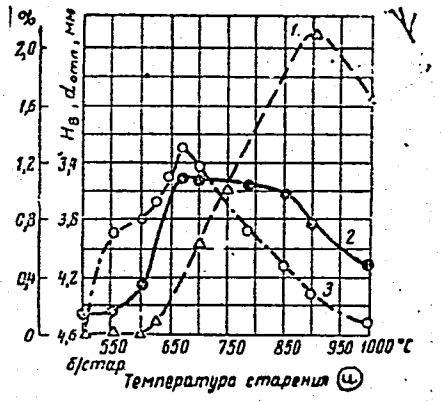
S/032/61/027/003/0C2/025
B118/B203

Differentiated phase ...

Legend to the figure: Effect of aging temperature on hardness, and on vanadium- and chromium carbide content of ЭИ 418 (EI 418) steel: 1) content of $Cr_{23}C_6$; 2) content of VC; 3) hardness.
a) aging temperature



Card 4/4

BOKSHTEYN, S.Z. (Moskva); KISHKIN, S.T. (Moskva); LOZINSKIY, M.G. (Moskva); SOKOLKOV, Ye.N. (Moskva); Prinimali uchastiye: PODVOYSKAYA, O.N.; ZILOVA, T.K.; SOROKINA, K.P.; POLYAK, E.V.; MOROZ, L.M.; BULYGIN, I.P.; LASHKO, N.F.; POKAMESTOVA, T.N.; GORDEYEVA, T.A.; YAGLOV, R.V.; VOLODINA, T.A.; KORABLEVA, G.N.; ANTIPOVA, Ye.I.

Thermomechanical treatment of chromium-nickel-manganese austenitic steel. Izv. AN SSSR. Otd. tekh. nauk. Met. i topl. no.2:15-21 Mr-Ap '62. (MIRA 15:4)
(Chromium-nickel steel--Hardening)

TEREKHOV, K.I.; LASHKO, N.F.; SOROKINA, K.P.

Phase constitution, structural transformations and heat resistance in chromium-nickel-manganese steel. Issl.po zharopr.splav. 8:155-161 '62. (MIRA 16:6)
(Steel, Heat-resistant--Metallography)
(Phase rule and equilibrium)

LASHKO, N.F.; SOROKINA, K.P.

Hardening phases in aging chromium-nickel steels alloyed with titanium and aluminum. Fiz. met. i metalloved. 14 no.1:121-124 Jl '62. (MIRA 15:7)

(Chromium-nickel steel—Hardening)

TUMANOV, A.T.; KISHKIN, S.T.; BOKSHTEYN, S.Z.; BLOK, N.I.; PLATONOVA, A.F.; SOROKINA, K.P.; ZASLAVSKAYA, L.V.; GLAZOVA, A.I.

Nina Mikhailovna Popova. Zav.lab. 29 no.1:103-104 '63. (MIRA 16:2)

(Popova, Nina Mikhailovna, 1914-1962)

S/032/63/029/003/002/020
B117/B186

AUTHORS: Kozlova, M. N., Lashko, N. F., and Sorokina, K. P.

TITLE: Phase analysis of nonferrous alloys

PERIODICAL: Zavodskaya laboratoriya, v. 29, no. 3, 1963, 261-271

TEXT: Western and Soviet literature on the phase analysis of nonferrous alloys for the period 1931-1961 are reviewed. The phase analysis of nickel, cobalt, chromium, copper, titanium, niobium, zinc, aluminum, and magnesium alloys, and methods of chemical phase separation in anode slime are described. There are 100 references.

Card 1/1

L 45449-65 EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b) Pad IJP(c) MJW/JD/HW/
ACCESSION NR: AT5011340 UR/0000/65/000/000/0055/0062 JG/GS

AUTHOR: Baykova, T. P.; Lashko, N. F.; Sorokina, K. P. 26 B+1

TITLE: Effect of iron on the phase composition, structure, and properties of a heat-resistant nickel-chromium-tungsten alloy

SOURCE: Fazovyy sostav, struktura i svoystva legirovannykh staley i splavov (Phase composition, structure, and properties of alloy steels and alloys). Moscow, Izd-vo Mashinostroyeniye, 1965, 55-62

TOPIC TAGS: alloy phase composition, alloy structure, alloy heat resistance, refractory alloy, iron admixture, nickel alloy, chromium alloy, tungsten alloy, carbide formation, alloy mechanical property

ABSTRACT: Nickel alloys of the type EI868 (av. 25% Cr and 14.5% W plus small amounts of Al, Ti, Fe, Mo, C) were heated for 5 min. at 1200C and cooled in water or air. After aging for 100 hrs. at 800C and cooling in air, differential phase analysis was carried out on anodic deposits. It was found that the introduction of up to 12.3% Fe into alloy EI868 causes the formation of two solid solutions (tungsten-base and chromium-base) after aging at 800C. It is characteristic that in alloys containing iron only a tungsten-base solution was found after quenching in water. Hence, iron decreases the solubility of tungsten and

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ACCESSION NR: AT5011340

chromium in EI868. The alloy is hardened by several dispersed phases - the carbides $Me_{23}C_6$, W-base and Cr-base solid solutions (at 2.0-3% Fe), and an Fe_2W-base intermetallic phase (at 13.2-17.6% Fe). In alloys containing 20% Fe and over, the σ phase is formed. Alloying EI868 with iron in amounts of 8 to 10% is not recommended, since this Fe content adversely affects the properties of the alloy because of the precipitation of tungsten and chromium, which form solid solutions in appreciable quantities. When EI868 contains 25-32% Fe, a considerable quantity of the σ phase is formed after aging for 100 hrs. at 800C; alloys with such an iron content have a low strength and plasticity. Orig. art. has: 2 figures and 5 tables.

ASSOCIATION: none

SUBMITTED: 17Dec64 ENCL: 00 SUB CODE: MM, SS

NO REF SOV: 002 OTHER: 000

Card 2/2

L 45452-65 EWT(m)/EWP(w)/ EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c) Pad IJP(c)
ACCESSION NR: AT5011343 MJW/JD/HW/GS UR/0000/65/000/000/0080/0091 34 32 B+1

AUTHOR: Kozlova, M. N.; Lashko, N. F.; Sorokina, K. P.

TITLE: Effect of grain size on the phase composition and properties of heat-resistant alloys

SOURCE: Fazovyy sostav, struktura i svoystva legirovannykh staley i splavov (Phase composition, structure, and properties of alloy steels and alloys). Moscow, Izd-vo Mashinostroyeniye, 1965, 80-91

TOPIC TAGS: alloy phase composition, alloy structure, refractory alloy, alloy mechanical property, grain size, carbide formation, steel aging, nickel alloy, alloy aging, austenitic steel

ABSTRACT: The article discusses the effect of developed grain boundaries and blocks on the precipitation of the structural components (carbides) in the course of aging of austenitic steel EI481 and nickel alloys EI437 and ZhS6-KP. Anodic deposits were isolated from the initial samples and from coarse-grained samples after quenching and heat treatment, and were chemically analyzed. The quantity of carbides $Me_{23}C_6$ formed in the course of aging in EI437 and of carbides of the type Ni_3W_3C in the complex nickel alloy ZhS6-KP was found to be dependent on the

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ACCESSION NR: AT5011343 2

average grain size; this is due to the preferential precipitation of these carbides along the grain boundaries, particularly during the first stage of aging. A larger quantity of $Me_{23}C_6$ is formed during aging in the fine-grained steel EI481 and in the nickel alloys than in coarse-grained alloys. The hardening of steels and alloys at temperatures below the recrystallization temperature is related to the quantity, form, and distribution of these carbides. After aging, fine-grained nickel alloys containing carbon and carbon-forming elements (Cr, W, Mo) have a reduced impact strength owing to the formation of a more extensive hard framework of $Me_{23}C_6$ carbides and binary carbides precipitating preferentially along the grain boundaries. Orig. art. has: 4 figures and 6 tables.

ASSOCIATION: none

SUBMITTED: 17Dec64 ENCL: 00 SUB CODE: MM, SS

NO REF SOV: 005 OTHER: 002

Card 2/2

L 45453-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c) MJW/JD/GS
ACCESSION NR: AT5011344 UR/0000/65/000/000/0092/0098

27
B+1

AUTHOR: Kolobashkin, B. M.; Lashko, N. F.; Sorokina, K. P.

TITLE: Phase analysis of EI481 steel in the cast and deformed state

SOURCE: Fazovyy sostav, struktura i svoystva legirovannykh staley i splavov (Phase composition, structure, and properties of alloy steels and alloys). Moscow, Izd-vo Mashinostroyeniye, 1965, 92-98

TOPIC TAGS: steel phase composition, cast steel, deformed steel, strain hardening, steel heat treatment, carbide distribution, steel mechanical property

ABSTRACT: Steel EI481, having the composition 0.38% C, 8.90% Mn, 0.72% Si, 14% Cr, 7.7% Ni, 1.26% V, 0.32% Nb, and 1.20% Mo, was subjected to phase analysis. The phase composition was determined after quenching from 1150 and 1200C in the cast state and only from 1150C in the deformed state, and aging. The carbides present were isolated electrolytically. Chemical and x-ray structural analyses were carried out on the anodic deposits obtained. The primary carbides $Me_{23}C_6$ and VC dissolve almost completely in the course of homogenization at 1150C, while in the cast steel the solution of these carbides takes place only as a result of double homogenization at 1200C. The decrease in the plasticity and impact strength

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L 45453-65
ACCESSION NR: AT5011344

of cast steel E1481 as compared to deformed steel after quenching from 1150C and double aging is due to the presence of primary carbides and the inhomogeneous dendritic structure of the solid solution. The greater stress-rupture strength of cast steel at 650-700C is apparently due to the inhomogeneity of the solid solution and to the greater quantity of $Me_{23}C_6$ carbides precipitating during aging as compared to the deformed steel. After a second homogenization of this steel at 1200C followed by quenching, the process of double aging has approximately the same kinetics and proceeds with the formation of VC and $Me_{23}C_6$ as in the deformed steel after quenching from 1150C. Orig. art has: 3 tables and 1 figure.

ASSOCIATION: none

SUBMITTED: 17Dec64 ENCL: 00 SUB CODE: MM, SS

NO REF SOV: 005 OTHER: 000

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L 45434-65 EWT(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD/JG/GS

ACCESSION NR: AT5011348 UR/0000/65/000/000/0150/0158 24 20 B+1

AUTHOR: Lashko, N. F.; Sorokina, K. P.

TITLE: Metastable transformations in austenitic steels containing carbides of the type MeC and Me sub 23 C sub 6

SOURCE: Fazovyy sostav, struktura i svoystva legirovannykh staley i splavov (Phase composition, structure, and properties of alloy steels and alloys), Moscow, Izd-vo Mashinostroyeniye, 1965, 150-158

TOPIC TAGS: austenitic steel, steel phase composition, carbide transformation, metastable transformation, steel heat treatment, steel aging, carbide distribution

ABSTRACT: Steels of the following two systems were studied: Fe-Cr-Mn-Ni-V-Nb-Mo-C (steel 1) and Fe-Cr-Mn-Ni-V-Nb-W-C (steel 2). Steel 1 was aged for 16 hrs. after a 2-hr. homogenizing treatment at 1150C followed by quenching in water. Steel 2 was aged at 800C under various conditions after a 40-min. homogenizing treatment at 1180C followed by quenching in water. The change in the amount and chemical composition of the carbides in the course of these processes was determined in both cases. During heat treatment, the carbides $Me_{23}C_6$, VC, and NbC are formed in the metastable state; NbC plays only a minor part in the aging processes. As

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L 45434-65

ACCESSION NR: AT5011348

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equilibrium is approached, the alloying elements and carbon are redistributed between the solid solution and the carbide phases. Because of the greater carbide-forming tendency of vanadium as compared to chromium, carbon is bound predominantly in the metastably dispersed vanadium carbides. A slight concentration of manganese and vanadium was detected in $Me_{23}C_6$ carbides isolated from the steels. In VC carbides, a considerable part of the vanadium atoms may be replaced by chromium and tungsten atoms. In both types of steels, the vanadium and niobium carbides are formed separately: niobium is absent from vanadium carbides, and virtually all of the niobium contained in the steel is present in the niobium carbides. The concentration of chromium and tungsten in vanadium carbides isolated from steel 2 rises steadily with increasing aging time. After the heat treatment, only the precipitation of carbide phases was observed in steel 1; in steel 2, however, which had a higher content of alloying elements, the intermetallic phase Me_2W was found in the course of aging after all of the carbon had been bound in the carbides. Orig. art. has: 5 tables.

ASSOCIATION: none

SUBMITTED: 17Dec64 ENCL: 00 SUB CODE: MM, SS

NO REF SOV: 006 OTHER: 001

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L 45431-65 EWP(e)/EWT(m)/EPF(n)-2/EWG(m)/EWA(d)/EPR/EWP(t)/EWP(z)/EWP(b)
Pad/Ps-4/Pu-4 IJP(c) AT/WH/MJW/JD/HW/JG/OS

ACCESSION NR: AT5011356 UR/0000/65/000/000/0223/0230 46 43 B+1

AUTHOR: Lashko, N.F.; Sorokina, K.P.

TITLE: Boride-forming elements

SOURCE: Fazovyy sostav, struktura i svoystva legirovannykh staley i splavov (Phase composition, structure, and properties of alloy steels and alloys). Moscow, Izd-vo Mashinostroyeniye, 1965, 223-230

TOPIC TAGS: boride formation, metal boride, steel phase analysis, alloy phase composition, iron boride, aluminum boride, titanium boride, chromium boride, molybdenum boride, tungsten boride

ABSTRACT: On the basis of the phase analysis of certain steels and alloys, the article presents comparative data on the boride-forming capacity of iron, aluminum, titanium, as well as metals of group VI of the Periodic Table (which are important alloying elements in many heat-resistant steels and alloys). Titanium has a greater boride-forming capacity than chromium, as indicated by the formation of titanium boride (TiB_2) not chromium boride, in steel EI696 (10% Cr, 20% Ni, 2-3% Ti, and up to 0.02% B). Molybdenum and tungsten, in turn, have a greater boride-forming capacity than chromium and titanium; when boron is introduced into steel EI696M (Steel EI696 containing 3% Mo),

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ACCESSION NR: AT5011356

only a molybdenum-base boride Mo_3B_2 is formed. This phase is also observed in steel EI787, containing 3% tungsten and no molybdenum. Chemical analysis of this phase shows that it consists mainly of tungsten, chromium, and a small amount of nickel, and that its composition varies widely. "The experimental part of the work was carried out with the cooperation of G. G. Georgiyeva." Orig. art. has: 4 tables.

ASSOCIATION: none

SUBMITTED: 17Dec64 ENCL: 00 SUB CODE: MM, IC

NO REF SOV: 004 OTHER: 003

Card 2/2

L 42127-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/HM/JG

ACC NR: AP6027787 SOURCE CODE: UR/0126/66/022/001/0066/0072

AUTHOR: Lashko, N. F.; Sorokina, K. P.

ORG: none

TITLE: Characteristic features of the phase composition of heat-resistant steels and alloys of the Fe-Ni-Cr-Ti-Mo-W-B system

SOURCE: Fizika metallov i metallovedeniye, v. 22, no. 1, 1966, 66-72

TOPIC TAGS: heat resistant steel, alloy steel, heat resistant alloy, nickel chromium alloy, molybdenum containing alloy, tungsten containing alloy, boron containing alloy, alloy aging, phase composition

ABSTRACT: The phase composition of heat-resistant EI696, EI696M, and EI787 steels has been investigated. Electrolytically isolated precipitates were found to consist of TiC carbide, TiB_2 and Me_3B_2 borides, Fe_2Ti and Fe_2 (Ti, Mo) compounds, and β-Ni_3Ti phase in amounts depending on steel type and temperature and duration of aging. The β-Ni_3Ti phase precipitates in a cubic shape at temperatures above 750—800C. However, lamellar particles of this phase precipitated at grain boundaries in EI696M steel after aging at 750C for 2000 hr or in EI787 steel after aging for 6000 hr. With prolonged aging, β-Ni_3Ti phase of EI696M steel becomes richer in iron. Precipitation of

Card 1/2 UDC: 669.14.018.45:620.181.4

L 42137-66

ACC NR: AP6027787

the Fe_2Ti phase in EI696 steel occurs at a lower temperature, about 800C, and in larger quantities than in EI696M steel. Precipitation of the Fe_2Ti phase in the latter steel occurs only after aging at 900C for 100 hr or at 750C for 2000 hr. The phase composition of EI787 steel generally is similar to that of EI696M steel, except that in the former, Ni_3 (Ti, Al) replaces β-Ni_3Ti phase. The tendency of β-Ni_3Ti phase and Ni_3 (Ti, Al) phase to transform from globular to lamellar form at high temperatures or after prolonged aging is typical for many Ni-Fe-Cr-Al system alloys. Orig. art. has: 1 figure and 7 tables. [TD]

SUB CODE: 11/ SUBM DATE: 03Aug64/ ORIG REF: 006/ ATD PRESS: 5062

Card 2/2 ML

SOROKINA, L.A.

Abel's works pertaining to the solvability of equations. Ist.-mat. issl. no.12:457-480 '59. (MIRA 13:11)
(Equations, Theory of)

BASHMAKOVA, I.G.; SOROKINA, L.A.

Interuniversity Conference on the history of the Physical and Mathematical Sciences. Usp. mat. nauk 15 no. 6:205-214 N-D '60. (MIRA 14:2)
(Physics) (Mathematics)

RYBNIKOV, Konstantin Alekseyevich; SOROKINA, L.A., red.; GEORGIYEVA, G.I., tekhn. red.

[History of mathematics] Istoriia matematiki. Moskva, Izd-vo Mosk. univ. Vol.2. 1963. 332 p. (MIRA 16:7)
(Mathematics)

RYBNIKOV, K.A., prof., red.; SPASSKIY, B.I., dots.,red.; KUDRYAVTSEV, P.S., prof., red.; KULIKOVSKIY, P.G., dots., red.; LITINETSKIY, I.B., dots., red.; MIKHAYLOV, G.K., st. nauchnyy sotr., red.; VERKHUNOV, V.M., kand. fiz.-matem. nauk, red.; KONONKOV, A.F., kand. fiz.-matem. nauk, red.; SOROKINA, L.A., nauchnyy red.; VERKHUNOV, V.M., nauchnyy red.;GRIDASOVA, Ye.S., red.izd-va; GOROKHOVA, S.S., tekhn. red.

[Problems of the history of the physical and mathematical sciences] Voprosy istorii fiziko-matematicheskikh nauk. Moskva,Gos. izd-vo "Vysshaia shkola," 1963. 522 p. (MIRA 16:7)
(Physics) (Mathematics)

AUTHOR: KONOROVA,E.A., SOROKINA,L.A. PA - 2072

TITLE: Dependence of Electrical Strength of Alkali Halide Crystals on Temperature. (Zavisimost elektriceskoj procnosti ot temperatury kristallov KBr i KCl, Russian).

PERIODICAL: Zhurnal Eksperimental'noi i Teoret.Fiziki, 1957, Vol 32, Nr 1, pp 143-144 (U.S.S.R.)
Received: 3 / 1957 Reviewed: 4 / 1957

ABSTRACT: The authors investigated this dependence for KBr and KCl in the temperature interval of from -170° to + 200° C in order to precise the existing experimental data. The investigation ensued at parallel voltage and at impulses of 10^{-4} and 10^{-6} sec with linearly increasing voltage. The amplitudes of the pulses lasting 10^{-4} and 10^{-6} sec were registered by means of a high voltage cathode oscillograph KO-20; measuring errors were less than 10%. The samples used for the investigation of the breakdown were produced from KBr- and KCl-crystals (which were bred according to KIRO-PULO'S method). The thermal and mechanical treatment of the samples is described.
A diagram shows the here received temperature dependences of E_{pr} (the significance of E_{pr} is not given, probably it denotes breakdown field strength) for KBr. In this temperature depend-

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Dependence of Electrical Strength of Alkali Halide Crystals on Temperature.

ence (at equal voltage) a maximum is observed at 50° C which decreases as the time voltage is applied is reduced. In the case of the pulses lasting 10^{-6} sec there is no maximum and only a slow increase of electric resistance capacity with temperature is observed.

The present paper leads, among others, to the following conclusions: According to the present theories of electric breakdown a slight increase of the electric resistance capacity with temperature must be observed in the entire temperature domain independently of the time of application. The here obtained dependence confirms the fact that the occurrence of the maximum is connected with processes of longer duration which occur in the dielectric on the occasion of the application of the electric field. Therefore the hypothesis of A.HIPPEL and R.MAUER, Phys. Rev.59, 820 (1941) is suited for the explanation of results. According to this hypotheis disruptive strength is diminished by the distortion of the field caused by the production of spatial charges. For the production of ion charges a time of 10^{-6} sec is necessary.

SOROKINA, L. A.

Konorova, Ye. A. and Sorokina, L.A. [Fizicheskiy institut imeni P.N. Lebedeva AN SSSR (Physical Institute imeni P.N. Lebedev AS USSR)] Temperature Dependency of the Electrical Stability of Alkaline-Haloid Crystals KBr and KCl

(The Physics of Dielectrics; Transactions of the All-Union Conference on the Physics of Dielectrics) Moscow, Izd-vo AN SSSR, 1958. 245 p. 3,000 copies printed.

This volume publishes reports presented at the All-Union Conference on the Physics of Dielectrics, held in Dnepropetrovsk in August 1956 sponsored by the "Physics of Dielectrics" Laboratory of the Fizicheskiy institut imeni Lebedeva AN SSSR (Physics Institute imeni Lebedev of the AS USSR), and the Electrophysics Department of the Dnepropetrovskiy gosudarstvennyy universitet (Dnepropetrovsk State University).

AUTHORS: Konorova, Ye. A., Sorokina, L. A. SOV/57-58-8-10/37

TITLE: On the Influence of Electrode Material and of Thermal Treatment of the Samples on the Electrical Strength of Alkali-Halide Crystals (O vliyanii materiala elektrodov i teplovoy obrabotki obraztsov na elektricheskuyu prochnost' shchelochno-galoidnykh kristallov)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Nr 8, pp. 1676 - 1678 (USSR)

ABSTRACT: This is a study of the influence of the electrode material and of the thermal treatment upon the electric strength at room temperature and upon the nature of the temperature dependence on the breakdown voltage. The method of the production of the samples and the experimental method were described already in reference 3. The thermal treatment of the samples is described in short. The evidence obtained permits to draw the following conclusions: 1) the electric strength of the crystals in question is independent of the electrode material at temperature above 100°C. 2) The thermal treatment previous to the application of the electrode exerts an influence upon the nature of the temperature dependence of the

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breakdown voltage $E_{breakdown}$ which is smaller that that exerted by the electrode material. The influence of this factor upon the electric strength of samples with gold electrodes can be explained on the basis of the hypothesis of A.Hippel (Ref 1). According to this hypothesis the contact between the electrode and the crystal is improved by evaporating the metal onto the heated surface of the crystal. This facilitates electron emission into the crystal which again leads to an increase of the electron space charge and hence also to a shift of the maximum towards higher temperatures. 3) The nature of the temperature dependence of the electric strength of samples with gold electrodes applied to a heated surface agrees with the data obtained by A.Hippel and R.S.Alger (Ref 1). The absolute values of electric strength obtained in this investigation are higher than those given in reference 1. It is believed, that this is caused by errors in the experimental method. 4) The only reasonable explanation of the dependence of electric

On the Influence of Electrode Material and of Thermal Treatment of the Samples on the Electrical Strength of Alkali-Halide Crystals

SOV/57-58-8-10/37

strength of crystals upon temperature which can be advocated at present is the hypothesis of A.Hippel (Ref 1). The Head of the Laboratory Professor G.I.Skanavi was interested in this work. There are 1 figure, 1 table, and 8 references, 2 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im.P.N.Lebedeva AN SSSR Moskva (Physics Institute imeni P.N.Lebedev, AS USSR, Moscow)

SUBMITTED: September 18, 1957

Card 3/3

SOROKINA, L. A.

AUTHORS: Konorova, Ye. A., Sorokina, L. A. 48-22-4-9/24

TITLE: The Dependence of Dielectric Strength of the Alkali-Halide Crystals KBr and KCl on Temperature (Zavisimost' elektricheskoy prochnosty shchelochno-galoidnykh kristallov KBr i KCl ot temperatury)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1958, Vol. 22, Nr 4, pp. 401-403 (USSR)

ABSTRACT: The authors determined by experiments, that the temperature dependence of E_{pr} in alkali-halide crystals on the constant voltage possesses a maximum. Modern theories of electric breakdown (references 8 to 10) are bringing into connection the disturbance of dielectric strength with impact ionization by means of electrons. For this reason a weak increase of dielectric strength with temperature must necessarily be observed in the entire temperature interval and independent from the duration of voltage application (at least with pulses of 10^{-6} sec). In the "high-temperature" theory of breakdown by Frelikh (ref. 11) it is attempted to explain the occurrence of a maximum according to the dependence of E_{pr} on temperature. Notwithstanding this circumstance it is

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not possible to explain from the viewpoint of this theory the fact, that the maximum occurring at a constant voltage with pulses of a duration of 10^{-6} sec is completely missing. The here obtained dependences verify, that the occurrence of maxima is connected with involved processes proceeding in the dielectric on an application of field. For this reason the hypothesis proposed by Khippel' and Aldzher (ref. 4) can be applied for the explanation of the obtained results. According to this hypothesis the reduction of the breakdown strength is caused by the distortion of the field because of the formation of space charges: that is to say, of a negative (electron) charge at low temperatures, caused by the cold emission of the cathode, and of a positive (ion) charge at high temperatures, caused by the conductivity of the crystal. It is possible that at some temperatures both charges compensate in such a way, that the field remains comparatively undistorted, and that the breakdown strength reaches a maximum. The increased strength at a reduced application of voltage at high temperatures proves, that for the formation of an ion charge a period exceeding 10^{-6} sec is needed. The magnitude of the space charge of the electrons is apparently

dependent upon the emission velocity of the electrons from the cathode. This implies a dependence upon the cathode material and upon the state of the contact surface on the one hand, and on the concentration of the electron traps on the other, that is to say, upon the degree of impurification of the crystal, on the previous thermal treatment etc. Because of the fact, that it is exceedingly difficult for different researchers to establish identical experimental conditions, certain deviations in the results must necessarily be taken into account (in particular a shift of the maximum). Final conclusions on the dependence of E_{pr} in the electric breakdown can apparently be drawn on the basis of an investigation of the nature of the currents in the range of pre-disruptive fields. This investigation was performed under the direction of G. I. Skanavi, to whom the authors express their gratitude. There are 3 figures and 11 references, 1 of which is Soviet.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Institute of Physics imeni P. N. Lebedev, AS USSR)

The Dependence of Dielectric Strength of the Alkali-Halide Crystals KBr and KCl on Temperature 48-22-4-9/24

AVAILABLE: Library of Congress

1. Alkali metal halide crystals---Dielectric properties
2. Dielectric properties--Temperature factors

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SOROKINA, L. A., KONOROVA, Ye. A.

"On Field Emission from Metals into Alkaline Halide Ceystals"

Paper presented at the IUPAP International Conference on Photoconductivity, Ithaca, New York, 21-24 Aug. 1961.

P. N. Lebedev Institute of Physics.

S/181/61/003/010/021/036
B104/B108

AUTHORS: Konorova, Ye. A., and Sorokina, L. A.

TITLE: Photoconductivity of uncolored alkali-halide crystals stimulated by a strong electric field

PERIODICAL: Fizika tverdogo tela, v. 3, no. 10, 1961, 3100 - 3104

TEXT: The authors examined KBr and KCl specimens grown by the Kiropulos method from ЧДА (ChDA) salt, and natural rock salt. The shapes of the specimens are shown in Fig. 1. Measurements were made in a vacuum chamber (10^{-5} mm Hg) at temperatures between +200 and -190°C. A voltage of 10 kv was applied to the specimens, and they were illuminated through a quartz window. The photocurrent was either recorded by a d-c amplifier or modulated with light (425 cps) and recorded by a selective amplifier on the tape of an ЭПП-09 (EPP-09) potentiometer. An incandescent lamp and a ПРК-2 (PRK-2) mercury tube served as light sources. The use of a УМ-2 (UM-2) monochromator ensured a spectrum from 400 to 700 mμ. The light intensity was measured with a selenium photocell. For measurements crystals were used, which showed no photoconductivity in fields of up to

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Photoconductivity of uncolored...

$5 \cdot 10^4$ v/cm. A strong electric field $((1-5) \cdot 10^5$ v/cm) was applied to these crystals. After a short time the field was removed, and the electrodes were closed over a measuring circuit. At first, the current in the measuring circuit dropped rapidly, but later became constant. This confirms the existence of a weak polarization field. If an electron charge exists in the specimen, illumination will cause current that decays with the drop of the volume charge (Fig. 2). The amount of the volume charge depends on the voltage applied to the specimen. At a mean field strength of $5 \cdot 10^5$ v/cm, the volume charge of an NaCl crystal is $10^{-9} - 10^{-10}$ coulombs. The volume charge of KBr and KCl is 10^{-11} coulombs. The corresponding electron densities are $10^{12} - 10^{11}$ cm^{-3} and 10^{10} cm^{-3}. Below a certain threshold voltage no electron charge is accumulated in the specimens. This threshold voltage is 2 kv for NaCl crystals and 4 kv for KBr and KCl crystals. The charge is virtually independent of temperature. The photoconductivity described above was observed only, when the crystals were illuminated only with light whose wavelength was in the F-band. Further measurements were made with a constant external voltage being applied to the specimens. It is shown that

Photoconductivity of uncolored...

F-centers are the sources of photoelectrons. Other trapping levels could not be discovered. The photocurrent is a function of powers of the field strength. There are 5 figures, 1 table, and 2 references: 1 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: A. Hippel, Phys. Rev., 54, 1096, 1938.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR Moskva
(Physics Institute imeni P. N. Lebedev AS USSR, Moscow)

SUBMITTED: May 22, 1961

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